

City of Hamilton Complete, Livable, Better Streets Design Manual



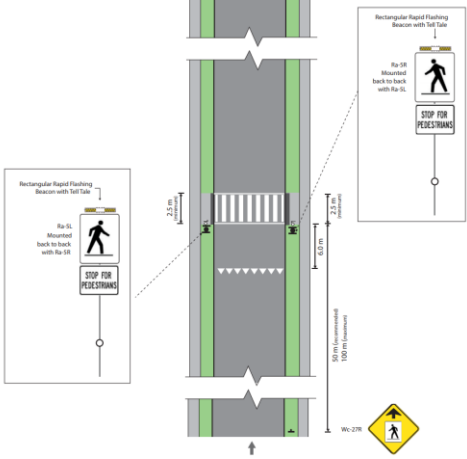
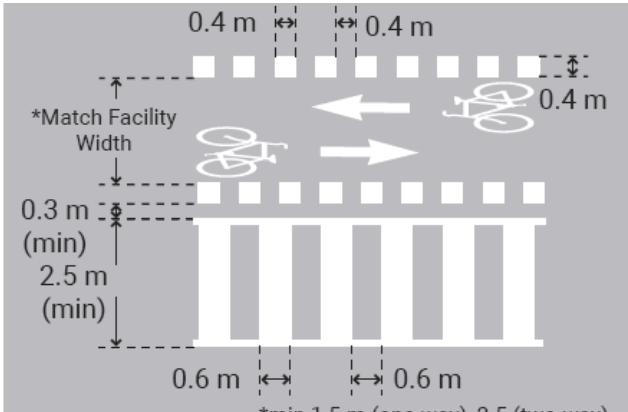
Typical Complete Streets Design Features

December 2nd, 2020

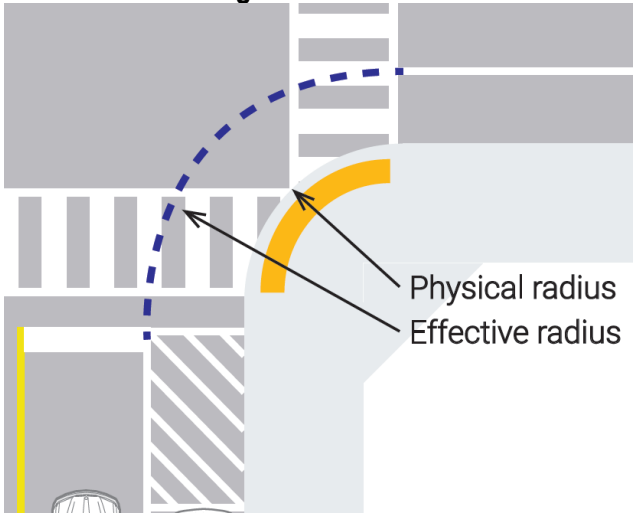
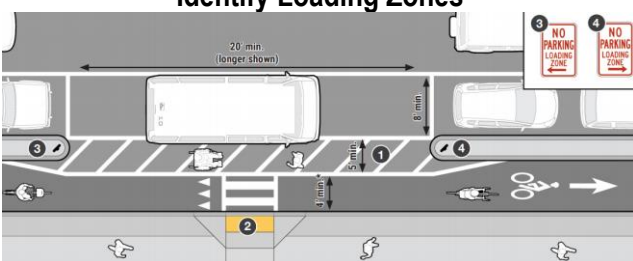


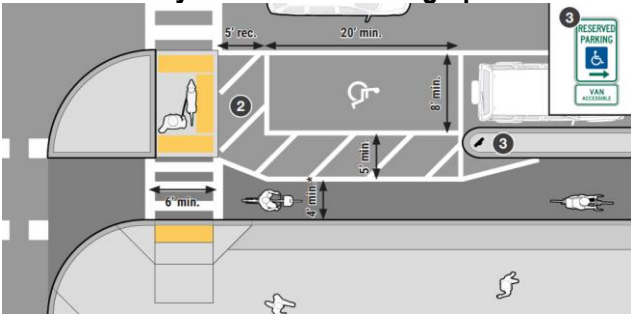
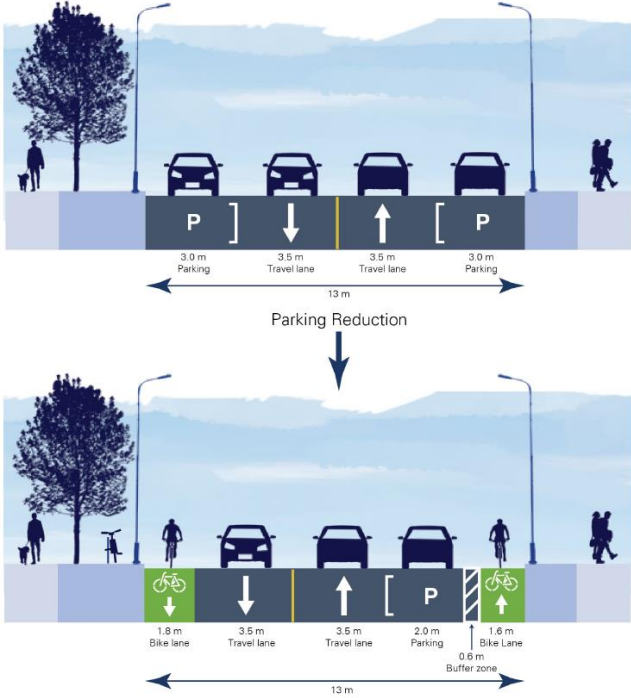
Hamilton

1 Typical Complete Streets Design Features

	Design Feature	Description
Crossing Treatments	Bulb-outs  Source: Richard Drdul, 2006	A bulb-out is an extension of the curb into the roadway that establishes a shorter crossing distance for pedestrians. Typically, bulb-outs extend the length of an on-street parking lane and make pedestrians more visibly to through motorists at crossing locations. Bulb-outs may also provide a traffic calming function.
	Mid-Block Pedestrian Crossovers (PXO's)  Level 2 Type D PXO Source: OTM Book 15, 2016	Mid-Block Pedestrian Crossovers are midblock pedestrian crossings designated by pavement markings, signage, and actuated signals depending on roadway context. At these locations, motor vehicles and cyclists must yield the right-of-way to pedestrians. The Ontario Traffic Manual Book 15 defines four types of pedestrian cross-over with increasing levels of control depending on the speed and volume of motor vehicles.
	Cross-rides  *min 1.5 m (one-way), 2.5 (two-way)	Cross-rides are pavement markings at roadway crossing locations that delineate space for people walking and cycling. Where cross-rides are implemented, cyclists need not dismount when crossing the road. The Ontario Traffic Manual Book 18 defines three types of cross-rides that may be applied in a range of crossing environments, including midblock crossings of multi-use trails and other multi-use intersection crossing locations.

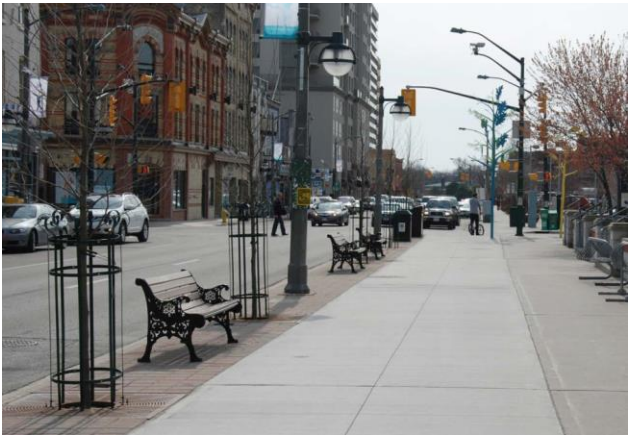
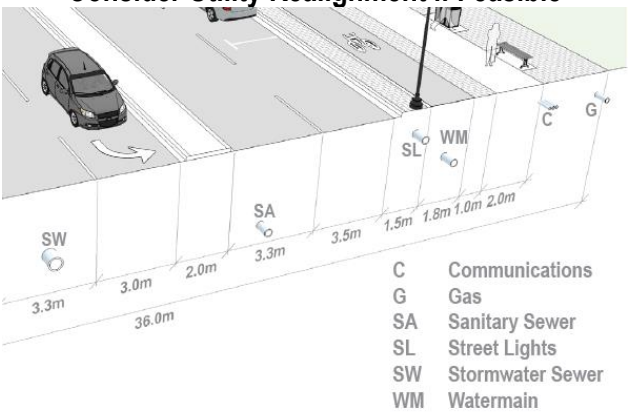
	Design Feature	Description
Crossing Treatments	Source OTM Book 18, Draft, 2020 Bicycle Traffic Signals  Source: WSP, 2018	Bicycle Traffic Signals are traffic signals that control the movement of cyclists at controlled crossing locations. Compared to General Traffic Signals, Bicycle Traffic Signals have smaller lenses that include bicycle stencils. They should be implemented at any controlled intersection where cyclists approach from a facility separated from motor vehicle traffic and at controlled midblock multi-use crossing locations.
Speed Management	Narrow Travel Lanes  Source: NACTO, 2013	Narrow travel lanes in the context of Complete Streets describes width reductions to general travel lanes. The purpose of this treatment is to force motorists to be more attentive to their path of travel and reduce their speeds. This can be accomplished by repainting travel lanes, increasing shoulder widths, and introducing bike lanes or on-street parking lanes.
	Reduce Posted Speed Limits  Source: Ken Gigliotti, 2014	Reductions in posted speed limits are a common Vision Zero and Road Safety strategy. Motor vehicle travel speed has demonstrated a positive correlation with the severity of injury among vulnerable road users when involved in motor vehicle collisions. Furthermore, breaking distances for motorists increase as operating speeds increase.

	Design Feature	Description
Speed Management	Tighter curb radii  Source: OTM Book 18, Draft 2020	Reducing or ‘tightening’ curb radii at intersections forces motorists to reduce their speed when turning, giving them more time to check mirrors, blind spots, and crossings for vulnerable road users. Mountable truck aprons with larger curb radii may be implemented at intersection locations that support infrequent turning movement by larger vehicles such as trucks or transit vehicles.
	Introduce Curbside Management  Source: OTM Book 18, Draft 2020 Identify Loading Zones  Source: MassDOT Separated Bike Lane Planning and Design Guide, 2015	Curbside management is a set of strategies to organize competing curbside uses such as on-street parking, cycling infrastructure, transit, and pick-up/drop-off. Designing curbside space using such strategies can alleviate conflicts between various users and guide the use of limited space efficiently. The introduction of parking laybys, designation of specific loading zones through pavement markings, and providing alternative spaces for loading or parking off of main streets are examples of curbside management strategies Loading zones are curbside spaces designated for the use of short-term delivery and loading. These locations are typically documented in local bylaw and signed in the boulevard. Optional hatched pavement markings may be used to further delineate these locations and deter motor vehicles encroachment when parked.

	Design Feature	Description
Curbside Management	Moving On-Street Parking to Side Streets or to Nearby Municipal/Private Parking Lots  Source: City of Toronto	On roadway retrofit or reconstruction projects, on-street parking may be removed on one or both sides to provide adequate space for active transportation infrastructure or dedicated transit lanes, among other roadway improvements. To reduce impacts on corridor parking supply, vehicular parking may be moved or promoted on side streets and off-street parking lots.
	Identify Accessible Parking Spaces  Source: MassDOT Separated Bike Lane Planning and Design Guide, 2015	Accessible parking spaces are curbside spaces designated for the use of parking by motorists with accessible parking permits. These spaces are typically located at or near curb ramps, such as at intersections, or near entrances to civic buildings and other public amenities.
Active Transportation	Reduce On-Street Parking to One Side of The Street and Repurpose Space for Bikeway Facilities  Source: OTM Book 18, Draft 2020	On narrow roadways with on-street parking on both sides of the streets, on-street parking may be reduced to one side to provide space for the implementation of cycling infrastructure between the curb.

	Design Feature	Description
Active Transportation	Widen Boulevards and Increased Pedestrian Clearways / Sidewalk Widths  Source: Hamilton Farmers Market, 2016	Widening boulevards and sidewalks may be appropriate in areas with high volumes of pedestrian traffic. Wider unobstructed pedestrian pathways (clearway) provides the space necessary for pedestrians to pass, push strollers, or navigate using mobility assistive devices.
	In-Boulevard Multi-Use Trail 	An in-boulevard multi-use path is a two-way travelled path shared by cyclists and pedestrians. These facilities are physically separated from motor vehicle traffic because they are placed above the curb (typically) with a horizontal buffer that may also be used for snow storage.
	Boulevard Bike Parking  Source: OTM Book 18, Draft 2020	Bike parking describes any end-of-trip facility that is designated for locking bicycles. Bike racks are a common form of bike parking typically placed in the boulevard. These facilities are used for short-term parking and should be located where pedestrian traffic is high to deter vandalism and theft through passive surveillance.
	Cycle Tracks  Source: OTM Book 18, Draft 2020	Cycle tracks are a one-way or two-way cycling facility that physically separate cyclists from motor vehicle traffic, typically in roadway conditions where motor vehicle traffic volumes and speeds are high. Physical separation is achieved by placing the cycle track above the curb with a horizontal buffer zone.

Design Feature		Description
Active Transportation	Buffered and Physically Separated Bike Lanes  Source: OTM Book 18, Draft 2020	Bike lanes are portions of the roadway that are designated for cyclists. On roadways with more than two through lanes or where warranted by motor vehicle speed and volume, a painted horizontal buffer may be applied to deter encroachment into the bike lane. Where motor vehicle speeds and volumes are high, physical separation may be placed in the buffer space to create a physically separated bike lane.
	Boulevard Café Space  Source: City of Toronto	Boulevard space may be temporarily allocated for use by fronting businesses on corridors with generous boulevard space to create vibrant, intimate environment and increase the placemaking function of a street. It is important to ensure that boulevard café space does obstruct the pedestrian clearway.
Streetscaping	Street Trees and Planters  Source: City of Hamilton, 2020	Streets trees and planters are typically placed in the planting / furniture zone of the roadway. They improve local streetscaping objectives that may attract pedestrian traffic and promote the placemaking functions of the street. It is important to ensure that the placement of these features near intersections and midblock crossings does not negatively impact sightlines for motorists.
	Pedestrian Level Lighting  Source: Hamilton Halton Brant	Improving pedestrian level lighting will help illuminate, enhance aesthetics and mitigate shading from street trees in the streetscape. Pedestrian level lighting helps improve accessibility, security, and safety.

Design Feature		Description
Streetscaping	Street Furniture  Source: London Complete Streets Design Manual, 2018	Adding street furniture, such as street benches, bike racks, and trash receptacles enhances the aesthetics of the streetscape. Having accessible street furniture encourages pedestrians to use the space to rest and socialize and to keep the area clean from litter.
	Road Diets (Repurpose Existing Curb to Curb Space)  Source: Region of Waterloo	Road diets include any roadway retrofit project where roadway space is reallocated to support other modes, particularly cycling infrastructure. Strategies to allocate more space for other modes include: • Reducing lane widths toward accepted minimums • Converting a 4-lane cross-section to a 2-lane cross-section with a centre-left turn lane • Removing on-street parking on one side of the street
Other	Consider Utility Realignment if Feasible  Source: London Complete Streets Design Manual, 2018	Where existing above ground utilities located in the boulevard present a sightline obstruction or barrier to implementation of boulevard infrastructure, a decision may be made to move utilities if feasibly as part of a major road reconstruction project.

	Design Feature	Description
Other	Transit and Cycle Track mixing zone  Source: Google Maps, 2020	When a bicycle lane or cycle track crosses a transit stop practitioners may consider incorporating the bicycle facility into the transit platform. Designers should take care to minimize conflicts with passengers boarding, alighting or waiting for transit. The bicycle facility should feature a ramp up to the platform to slow cyclists as they approach the conflict area. It is also recommended that the area where passengers board and alight be surrounded by bright yellow tactile paving. This clearly defines the conflict zone for all users, including those who are visually impaired.